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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/242,096	05/26/1999	MICHAEL J. KEMP	R0346/7016	9589

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RONALD J KRANSDORF
WOLF GREENFIELD & SACKS
FEDERAL RESERVE PLAZA
600 ATLANTIC AVENUE
BOSTON, MA 022102211

EXAMINER

PENDLETON, BRIAN T

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 02/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/242,096

Applicant(s)

KEMP, MICHAEL J.

Examiner

Brian T. Pendleton

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims each state that the impulse response of an processor is stored for at least two impulses, which is an indefinite statement.

Examiner is determining the merits of the claims assuming that the Applicant intended to recite that two impulse responses are stored.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

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Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-4, 9-13 and 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Ando et al. In figure 2, Ando et al teach a reverberation imparting apparatus comprising coefficient processing portion 30, which stores at least two impulse responses, coefficient change control portion 40 for assessing a characteristic of an input signal and convolution portion 20 for applying an impulse response to the input signal to derive an output signal at terminal 21. As discussed in column 8 line 25 – column 19 line 19 and figures 7-15, the coefficients in coefficient processing portion 30 are shifted, hence a different impulse response is selected, according to the amplitude of the input signal. Claims 1 and 10 are met. As to claims 2 and 11, Ando et al disclose that the portion 30 has stored coefficients which are shifted. The shifted coefficients represent a different impulse response and the convolution portion 20 convolves the input signal with an impulse response. Regarding claims 3 and 12, level detection circuit 41 assesses the amplitude of the input signal. Per claims 4 and 13, column 2 lines 12-18, state that a new impulse response is selected when the amplitude of the input signal becomes lower than a threshold value. As to claims 9 and 18, amplitude is monitored, which is time-dependent. As to claims 19 and 20, the changing coefficients represent a plurality of impulse responses. The various coefficient sets when convolved with input signals will simulate different audio signal processing. As a result, the responses of different audio signal processors are stored.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al in view of Su et al. Ando et al teach an apparatus comprising stored impulse responses in coefficient processing portion 30, a level detection circuit 41 for assessing a characteristic of an input signal and convolution portion 20 for applying a selected impulse response to the input signal. Ando et al do not disclose selecting the impulse response using an user input. However that feature was well known in the art as demonstrated by Su et al. In figure 10, Su et al teach a parameter control unit 72 which controls the wave ladder filters 52 through user input. The wave ladder filters 52 are impulse response filters which simulate the reflection of a wave off an object. The filters contain delay and gain elements and the number of elements and their magnitudes represent an impulse response. These filters were controlled by unit 72. Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to utilize user input in the invention of Ando et al per the teachings of Su et al since it was a well known practice.

Claims 5-7 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al in view of Higashi. Ando et al teach an apparatus comprising stored impulse responses in coefficient processing portion 30, a level detection circuit 41 for assessing a characteristic of an input signal and convolution portion 20 for applying a selected

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impulse response to the input signal. Ando et al do not disclose determining when the amplitude of the input signal is between two values and generating an impulse response dependent on the position of the amplitude between the two values wherein more than one impulse response is used and applied in proportions which sum to one. To one of ordinary skill in the art, the claims are calling for interpolation. However interpolating an impulse response using an input signal was known in the art, as evidenced by Higashi. Higashi teach a system whereby sound localization coordinates are input to a FIR table.

In the case where the coordinates do not match exactly with entries in the table, interpolator 27 is used to select an impulse response. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the teachings of

Higashi in the invention of Ando et al. **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (703) 305-9509. The examiner can normally be reached on M-F 7-4:30.

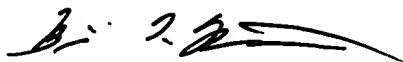
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

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Brian Tyrone Pendleton

January 14, 2004



FORRESTER W. ISEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER (6)